

REMARKS

Claims 1-50 and 52-65 are pending in the subject application. Claims 1-60 have been examined: claims 1-18, 20-22, 25-33, 39-55 and 57 stand rejected; claims 19, 23, 24, 34-38 and 56 are indicated as containing allowable subject matter; and claims 58-60 are allowed. By the above amendments, claims 1, 14, 15, 18, 33, 46, 47, 52, 53, 55 and 58 have been amended, claim 51 has been canceled, and new claims 61-65 have been added. The amendments to the claims are for clarification purposes only and should in no way be construed as narrowing the originally claimed subject matter. Favorable reconsideration of the application and allowance of all the pending claims are respectfully requested in view of the above amendments and the following remarks.

Applicant thanks the Examiner for indicating that claims 19, 23, 24, 34-38, and 56 are allowable and for allowing claims 58-60.

The drawings are objected to under 37 CFR §1.83(a) for failing to show every feature of the invention specified in the claims. Specifically, the Examiner identifies the second end of the optical fiber centered in the diffraction grating specified in claim 37 and the second end of the optical fiber integral to the diffraction grating specified in claims 38 and 58 as not being depicted in the drawings.

Applicant respectfully submits that the identified features are present in the drawings in a manner that supports claims 37, 38, and 58. With respect to Fig. 1, an embodiment is described at page 15, lines 8-11, that uses an optical fiber 32 having a first end 44 and a second end 45 to couple inelastically scattered radiation from a receiving telescope secondary reflector 26 to a spectrograph 33. At page 15, lines 14-17, the spectrograph 33 is further described as including a diffractor 35 that may be, for example, a diffraction grating, such as a Bragg grating, or a prism, for distributing the spectrum of constituent wavelengths. Further, at page 20, lines 1-5, it is explained that the second end 45 may be centered in diffractor 35, second end 45 may be integral to diffractor 35 and that second end 45 may be coincident with a focal point 48 of parabolic reflector 47. These features are clearly indicated in Fig. 1 and identified with corresponding numeric identifiers 26, 32, 33, 35, 44, 45, 47, and 48, respectively.

Applicant respectfully submits that Fig. 1 clearly depicts the second end 45 of optical fiber 32 centered in the diffraction grating 35, as recited in claim 37, and the second end of the optical fiber 32 as integral to the diffraction grating, as specified in claims 38 and 58. Accordingly, Applicant respectfully submits that these elements of the claims are shown in the application drawings and requests that the Examiner withdraw the objection to the drawings.

Claims 14, 15, 18, 33, 46, 47 and 55 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Applicant has amended each of these claims to address the informalities noted by the Examiner and respectfully requests that the Examiner withdraw the rejection of these claims under 35 U.S.C. §112, second paragraph.

Claims 1-15, 21, 22, 25-31, 39-45 and 48-52 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Welch in view of Ray. Further, claims 16, 17, 20, 53, 54 and 57 stand rejected over Welch and Ray and further in view of Grant, and claim 32 stands rejected over Welch and Ray, and further in view of Galle. Applicant respectfully traverses these rejections for the following reasons.

Independent claims 1, 43, 52 and 53 set forth an apparatus and method for laser interrogation of surface agents moving relative to the apparatus. With respect to claim 1, the claim requires a reflector for directing an output beam in a second direction and a receiver telescope with a focusing mechanism, the receiver telescope having a focal direction substantially opposite to said second direction for receiving inelastically scattered radiation. The claim further requires a range-finder for outputting a distance-to-target in a third direction at a predetermined non-zero angle to the second direction in a direction of the relative motion and a focusing mechanism that moves a secondary reflector based on the distance-to-target and rate of relative motion.

With regard to the rejection of claims 1 over Welch in view of Ray, neither Welch or Ray discloses or suggests a range finder for determining a distance-to-target in a direction that is at a non-zero angle to the direction of focus of a receiving telescope, and a receiving telescope focusing mechanism that focuses the receiving telescope based on the distance-to-target and a rate of relative motion.

In Welch, at col. 1, line 64 - col. 2, line 6, a mineral survey package generates a laser beam that is directed downward from an aircraft to vaporize minerals at a sample point below the aircraft resulting in radiation, a portion of which is received by the mineral survey package, from below. (See col. 1, line 64 - col. 2, line 6, and Figs. 1-3) In Welch, altitude information is applied to adjust the focus of the laser beam expander and spectrometer optics within the mineral survey package. (See col. 2, line 41-47). Nowhere does Ray disclose or suggest a focusing mechanism that is focused based on a distance-to-target in a direction that is at a non-zero angle to the direction of the receiving telescope and a rate of relative motion as required by claim 1.

The Examiner admits that Welch does not disclose a second reflector, a laser range finder or an excimer or an alexandrite laser and relies upon Ray to fill these deficiencies. However, like Welch, Ray fails to disclose or suggest a range finder for determining a distance-to-target in a direction that is at a non-zero angle to the direction of focus of a receiving telescope, and a receiving telescope focusing mechanism that focuses the receiving telescope based on the distance-to-target and a rate of relative motion.

Thus, the subject matter of claim 1 would not have been (and could not have been) obvious from any combination of Welch and Ray. Dependent claims 2-15, 21, 22, 25-31, 39-42 include all the limitations of claim 1 by reference; hence, the subject matter of dependent claims 2-15, 21, 22, 25-31, 39-42 would not have been (and could not have been) obvious from any combination of Welch and Ray for at least the same reasons. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. §103(a) rejection of claims 2-15, 21, 22, 25-31, 39-42.

As stated above, independent claims 43, 52 and 53 each set forth one of a method and apparatus for laser interrogation of surface agents moving relative to the apparatus that include the same or similar limitations as claim 1. Hence, independent claims 43, 52 and 53 would not have been (and could not have been) obvious from any combination of Welch and Ray for at least the same reasons. Dependent claims 44-50 and 54-57 include all the limitations of independent claims 43 and 53, respectively, by reference. Hence, the subject matter of dependent claims 44-50 and 54-57 would not have been (and could not have been) obvious from any

combination of Welch and Ray for at least the same reasons. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. §103(a) rejection of claims 43-50 and 52-57.

With regard to claims 16, 17, 20, 53, 54 and 57, the Examiner admits that the Welch and Ray combination fails to disclose use of an aluminum honeycomb mounting material. The Examiner relies upon Grant to fill that deficiency. However, like Welch and Ray, Grant fails to disclose or suggest a range finder for determining a distance-to-target in a direction that is at a non-zero angle to the direction of focus of a receiving telescope, and a receiving telescope focusing mechanism that focuses the receiving telescope based on the distance-to-target and a rate of relative motion. Thus, the subject matter of claims 16, 17, 20, 53, 54 and 57 would not have been (and could not have been) obvious from any combination of Welch, Ray and Grant. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. §103(a) rejection of claims 16, 17, 20, 53, 54 and 57.

With regard to claim 32 the Examiner admits that the Welch and Ray combination fails to disclose use of an optical fiber coupling. The Examiner relies upon Galle to fill that deficiency. However, like Welch and Ray, Galle fails to disclose or suggest a range finder for determining a distance-to-target in a direction that is at a non-zero angle to the direction of focus of a receiving telescope, and a receiving telescope focusing mechanism that focuses the receiving telescope based on the distance-to-target and a rate of relative motion. Thus, the subject matter of claim 32 would not have been (and could not have been) obvious from any combination of Welch, Ray and Galle. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the 35 U.S.C. §103(a) rejection of claim 32.

Applicant has added new claims 61-65. Claims 61-65 are each directed to an apparatus and method for laser interrogation of surface agents moving relative to the apparatus. Claims 61-65 each require a range finder for determining a distance-to-target in a direction that is at a non-zero angle to the direction of focus of a receiving telescope, and a receiving telescope focusing mechanism that focuses the receiving telescope based on the distance-to-target and a rate of relative motion. Claim 65 further requires a pulsed laser. Hence, claims 61-65 are patentable for

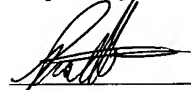
at least the same reasons provided above with respect to claims 1-60. Support for claims 61-65 is found throughout the specification. Specific support for use of a pulsed laser is found in the specification at page 5, lines 5 - 8 and page 9, line 4-12.

In view of the foregoing, Applicant respectfully requests the Examiner to find the application in condition for allowance with claims 1-50 and 52-65. However, if for any reason the Examiner believes that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to resolve any issues and to expedite the disposition of the application.

Amendment
U.S. Patent Appln. No. 10/098,627

Filed concurrently herewith is an excess claim fee in the amount of \$158 for payment of one independent claim in excess of the six previously paid for and four excess total claims in excess of the sixty previously paid for. Also filed concurrently herewith is a Petition (with payment) for an extension of time of one month. Applicant hereby petitions for any extension of time that may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 05-0460.

Respectfully submitted,

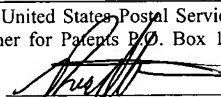


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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 on December 1, 2003 by Patrick J. Finnan.


Patrick J. Finnan